

DUDEK

621 CHAPALA STREET
SANTA BARBARA, CALIFORNIA 93101
T 805.963.0651 F 805.963.2074

December 18, 2006

4435-01

Mr. Erwin Bucy
Vice President, Investments
Regency Centers
915 Wilshire Boulevard, Suite 2200
Los Angeles, CA 90017

SUBJECT: *Proposed Whole Foods Commercial Center
3757-3771 State Street
Santa Barbara, California
Environmental Noise Study- REVISED*

RECEIVED

DEC 20 2006

CITY OF SANTA BARBARA
PLANNING DIVISION

Dear Mr. Bucy:

This report contains our assessment of the future transportation-related noise environment at the proposed new Whole Foods Commercial Center at 3757-3771 State Street located in the City of Santa Barbara. The assessment has been conducted in conformance with the City of Santa Barbara's requirement that the Community Noise Equivalent Level (CNEL) not exceed 60 dB(A) within exterior living spaces of the project. In addition, the report examines future noise levels from commercial operations within the project site (primarily equipment sources and truck deliveries). The report also contains a preliminary analysis of residential condominium interior noise levels based upon the conceptual building designs, for comparison with the 45 dB(A) CNEL residential interior noise criterion.

In summary, future noise levels within the proposed exterior living spaces of two condominiums (Unit 14 and Unit 15) of the project from Year 2030 traffic volumes on State Street and Hitchcock Way are calculated to range up to 64 dB(A) CNEL. This exterior noise level would exceed the acceptable range for new development containing residences, and therefore mitigation would be required. In order to achieve a sound level of 60 dB(A) CNEL or below, the proposed second-floor balcony / terrace facing State Street would require a minimum six foot high sound wall around the perimeter of the space; the sound wall may consist of masonry material, Plexiglas, or tempered glass. The height requirement is relative to the balcony / terrace floor elevation. The proposed sound wall would attenuate the noise level to 60 dB CNEL or less.

Based on preliminary project information, the on-site noise levels from commercial operations would exceed the City's noise criteria due to the rooftop mechanical equipment noise at the west end of the parking lot. This noise could be mitigated with a six-foot high sound wall around the

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

units in this area. Also, noise from mechanical equipment within the Whole Foods basement area would exceed the City's noise criteria and could be mitigated by installing an approximate five-foot long sound attenuator immediately before the louver. Other noise abatement treatments may also be appropriate such as installing an acoustical louver, using sound absorbing materials or a plenum chamber within the interior of the mechanical room. These measures are preliminary and subject to change during the facility design phase to ensure appropriate noise abatement measures are implemented. A noise study will be prepared prior to the final facility design approval, to ensure necessary noise abatement measures incorporated into the building and site plans effectively mitigate the equipment noise to 60 dB CNEL or less at the adjacent multi-family units.

To comply with the City and State's 45 dB(A) CNEL interior noise standard, an interior noise analysis will be required for the project prior to issuance of building permits. Based on a preliminary review, sound-rated windows and mechanical ventilation or air conditioning could be required for the two condominium units directly adjacent to State Street (Unit 14 & 15) and the three units immediately adjacent to Hitchcock Way and the delivery access driveway (Units 9-13).

1.1 Project Setting

The project site is located at 3757-3771 State Street, which lies at the southwest corner of the intersection of State Street and Hitchcock Way. The site is currently occupied by five separate commercial structures and related surface parking. All of the existing site improvements would be demolished and the site would be reconstructed with the proposed development. The Whole Foods Commercial Center is proposed to contain five new separate structures; residential condominiums are an integral component of three of the proposed structures.

Because the proposed development would contain residential condominiums (a noise-sensitive land use) an acoustical study is required as part of the application review process by the City of Santa Barbara; the City specified this requirement in their 30-Day Development Application Review For 3757-3771 State Street, December 5, 2005. The original acoustical analysis was based on the Site Plan, Floor Plan, and Elevations by Cearnal Androlatis Architects, January 25, 2006. The City of Santa Barbara requested additional analysis regarding on-site commercial noise sources in their Final Development Application Review For 3757-3771 State Street, May 30, 2006. This revised acoustic analysis addresses the May 2006 City correspondence, and is based upon the May 2006 architectural plan set by Cearnal Androlatis Architects.

DUDEK

4435-01

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

1.1.1 Noise Sensitive Project Components (Residences)

The project site is located at the southwest corner of the intersection of State Street and Hitchcock Way. The regional location and project vicinity are depicted in *Figures 1 and 2*. The site plan for the subject property is depicted on *Figure 3*. The proposed floor plans for the project components that contain residential condominium units are illustrated on *Figure 4, 5 and 6*. The project will provide outdoor living space in the form of private balconies or terraces for each of the proposed condominium units. Please refer to *Figure 4, 5 and 6* for the location of proposed balconies / terraces.

In general, there are three groups of condominium units that can be described as follows. Group number one consists of Units 1-9; these units are situated at the southwest corner of the project site, along the rear of the Whole Foods space. Each of these units would have three levels of interior living space, beginning at the ground elevation. The primary entrance to the units would be located on the third level, which is coincident with a roof-top parking lot for Whole Foods/Circuit City. On this third level, each unit would have a private garage, with vehicular access connecting to the commercial roof-top parking lot. Private exterior living space in the form of individual terraces would be provided on the roof of the private garages for these units; in essence the terraces would be at the fourth level, one story above the parking lot and top level of associated interior residential space. Please refer to *Figure 4 and 5* for the location of proposed terraces for Units 1-9.

Group number two of the proposed condominiums consists of Units 10-13; these units are situated at the southeast corner of the project site, along the rear of the Circuit City space. Each of these units would have two levels of interior living space, beginning at the roof elevation for the Circuit City/Whole Foods space and extending up two floors. The primary entrance to the units would be located on the first level, where each unit would also have a private garage with vehicular access connecting to the commercial roof-top parking lot. Private exterior living space in the form of individual terraces would be provided on the second level these units (which coincides with the elevation of the roof-top terraces for Units 1-9). Please Refer to *Figure 5* for the location of proposed terraces for Units 10-13.

Group number three of the proposed condominiums consists of Units 14-15. These units would be contained in the structure located at the northeast corner of the project site, adjacent to the State Street / Hitchcock Way Intersection. The ground floor of this structure would be dedicated to commercial space. Unit 14 would have two levels of interior living space, on the second and

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

third floor of this structure. Unit 15 would have one level of interior living space, on the second floor of the structure. Exterior living space in the form of a balcony / terrace would be provided on the second floor of the structure, facing State Street. Please Refer to *Figure 6* for the location of proposed balcony / terrace for Units 14-15.

1.1.2 Noise Generating Project Components (Commercial Sources)

Primary noise generating sources for the proposed project include mechanical equipment and truck operations. The following discussion provides setting information for these commercial noise sources.

Basement Level – Whole Foods / Circuit City

Figure 7 illustrates the basement level of the combined Whole Foods / Circuit City structure. The basement level would occupy approximately one-third of the total footprint of the structure. Employee parking, truck loading, and mechanical equipment would be located on the basement level; no residences or commercial floor area would be located on the basement level.

Three commercial-grade trash compactors would be situated on the basement level, one apiece for Whole Foods, Circuit City, and the condominium residences contained in the structure. Two cardboard bailers would also be placed on the basement level, one apiece for Whole Foods and Circuit City. Compactors and bailers would be operated intermittently during store operating hours.

Circuit City would be outfitted with a single freight elevator, serving the basement-level receiving area and the ground-level commercial store space; Whole Foods would be served by two freight elevators with stops on the basement level receiving area and ground-level store area. Hydraulic equipment for elevator operation would be located on the basement level. Freight elevators would primarily be operated during delivery truck operations to their associated store.

Whole Foods would locate the compressors for all their refrigeration units in an enclosed steel container in the basement area. Ventilation ports for the steel container would outlet to an insulation-lined corridor terminating at a second enclosed room containing the evaporative cooler unit for Whole Foods (the evaporative cooler unit provides the primary climate control for Whole Foods). Sound generation levels from the compressors, as experienced in the evaporative cooler enclosure, should be substantially reduced via the insulated corridor.

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

The evaporative cooler units would utilize a large, slow-moving fan (approximately 2000 cubic foot per minute air volume capacity). The ventilation outlet for the evaporative condenser room would be an approximately 5 foot by 8 foot louvered opening, on the west façade of the structure, beneath the level of the vehicle access ramp to the roof-level parking area. This ventilation outlet would be located approximately 10 feet horizontally from ground-level landscaped open space outside condominium unit #1. However, this open space is not intended to fulfill exterior living space requirements for unit #1.

Co-located in the evaporative cooler room (described above) would be an emergency / standby electrical generator of 50 kW capacity for the Whole Foods facility. The generator would be natural gas powered, and would only be used in the event of electrical service loss (infrequent emergency situation). The generator has standard muffler, any noise produced during infrequent operation of the generator would exhaust through the louvered ventilation opening described above.

Other than the louvered ventilation outlet for the evaporative cooling room, the only exterior opening from the basement level would be the vehicle entry door (parking garage doorway). The garage door opening would be located at the bottom of the ramp (i.e., the ramp itself would be outdoors), on the east face of the Whole Foods section of the structure. A roof-level exterior terrace area for proposed condominium unit #9 would be located directly above the garage opening of the basement level, approximately 20 feet higher in elevation than the garage opening.

Roof Parking Level – Whole Foods / Circuit City / Condominiums

Figure 8 illustrates the roof level of the combined Whole Foods / Circuit City structure. Note this level contains surface parking for both stores, garaged parking for each of the proposed residential condominiums, residential interior and exterior living space, and roof-mounted mechanical equipment.

Circuit City would locate two heating, ventilation, air conditioning (HVAC) package units on this level of the development, in an enclosed tower element at the northeast corner of the structure. The tower HVAC enclosure would include large ventilation grilles in the south, east, and north faces. The tower HVAC enclosure would be situated approximately 70 feet from the closest residential condominium (Unit #13).

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

Co-located in the HVAC tower enclosure (described above) would be an emergency / standby electrical generator of 35 kW capacity for the Circuit City facility. The generator would be natural gas powered, and would only be used in the event of electrical service loss. The generator would have a standard muffler, any noise produced during infrequent operation of the generator would exhaust through the ventilation grilles described above.

There would be five roof-mounted groupings of exhaust fans and make-up air fans for the Whole Foods facility. Please refer to Figure 8 for reference during the following discussion.

Whole Foods Fan Group 1

At the entry/exit to the vehicle ramp at the roof level there are two parking stalls, with an adjacent screened mechanical equipment area. This grouping would have a 6-foot masonry wall around the perimeter of the space. This grouping is approximately 70 feet from the nearest residential condominium unit (Unit #1).

Whole Foods Fan Group 2

At the northwest corner of the Whole Foods roof area there is screened mechanical equipment area. This grouping would have a 6-foot masonry wall around the perimeter of the space. This grouping is approximately 140 feet from the nearest residential condominium unit (Unit #1).

Whole Foods Fan Group 3

At the south end of the first full parking island closest to the vehicle ramp at the roof level, there is a screened mechanical equipment area. This grouping would have a 4-foot masonry wall around the perimeter of the space. This grouping is approximately 30 feet from the garage of the nearest residential condominium units, and approximately 55 feet from residential living space (Units #5 and #6).

Whole Foods Fan Group 4

At the south end of the easterly parking island for Whole Foods, there is a combined grouping of two adjacent equipment enclosure areas. This grouping would have a 4-foot masonry wall around the perimeter of each of the two adjacent spaces. This grouping is approximately 30 feet from the garage of the nearest residential condominium units, and approximately 45 feet from residential living space (Units #8 and #9).

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

Whole Foods Fan Group 5

At the west end of the central parking island for Circuit City, there is a screened mechanical equipment area. This grouping would have a 4-foot masonry wall around the perimeter of the space. This grouping is approximately 45 feet from the garage of the nearest residential condominium unit, and approximately 65 feet from residential living space (Unit #10).

Truck Delivery Operations - Whole Foods / Circuit City

For Whole Foods, 17 tractor trailer truck deliveries are anticipated per week (3 each weekday, 2 on Saturday, none on Sunday). Typical truck visits are up to 45 minutes for a fully loaded truck; trucks depart upon unloading with no overnight parking of trucks on premise. Typical truck delivery hours are between 5 AM and 6 PM. Additional standard deliver trucks would also occur during these hours.

Circuit City would be anticipated to have 1-2 heavy truck deliveries per week, non holiday season. For the holiday season, the average heavy truck deliveries would be in the 2-4 per week range. Trucks are typically unloaded within 1-hour of arrival, and then depart. Trucks do not remain on premise overnight. Circuit City truck deliveries occur during the hours between 8 AM and 6 PM.

1.2 City Noise Criteria

The City of Santa Barbara mandates noise levels within required outdoor living spaces for new single family and multiple family residential development not exceed 60 dB CNEL and the interior noise levels not exceed 45 dB CNEL (City of Santa Barbara, 1979). Also, Title 24 of the California Administrative Code requires interior noise levels not to exceed 45 dB CNEL within multi-family units. All sound levels discussed in this report are A-weighted. The acoustical terminology used in this report is defined in *Attachment 1*.

2.0 EXISTING CONDITIONS

The project site is exposed to traffic noise from State Street and Hitchcock Way. State Street carries a current volume of approximately 25,500 average daily trips [ADT], according to Associated Transportation Engineers (ATE, 2005). Hitchcock Way carries a current volume of approximately 5,600 ADT (ATE 2005).

DUDEK

4435-01

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

Ambient Noise Monitoring

A noise measurement was conducted along the subject property boundary and adjacent to State Street to determine the existing noise level associated with State Street on the project site. A second noise measurement was conducted along the subject property boundary and adjacent to Hitchcock Way to determine the existing noise level associated with Hitchcock Way on the project site. The measurements were made using a calibrated Larson-Davis Laboratories Model 820 (S.N. 1534) integrating sound level meter equipped with a Type 2551 ½-inch pre-polarized condenser microphone with pre-amplifier. When equipped with this microphone, the sound level meter meets the current American National Standards Institute standard for a Type 1 precision sound level meter. The sound level meter was positioned at a height of approximately five feet above the ground.

The noise measurement locations are depicted as Site 1 on and Site 2 on *Figure 9*. Site 1 is approximately 50 feet from the centerline of State Street, approximately on the northern subject property boundary. The measured average noise level was 67 dB at Site 1. Site 2 is approximately 30 feet from the centerline of Hitchcock Way, approximately on the eastern subject property boundary. The measured average noise level was 63 dB at Site 2. *Table 1* shows the measured noise levels and concurrent traffic volumes.

Table 1
Measured Average Sound Level

Site	Description	Date/Time	L_{eq}^1	Cars	MT ²	HT ³
1	Approximately 50 feet to center line of State Street	11/10/05 10:35 to 10:55 a.m.	67 dB	546	11	1
2	Approximately 30 feet to center line of Hitchcock Way	11/10/05 11:15 to 11:45 a.m.	63 dB	305	5	0

- Notes:
- ¹ Equivalent Continuous Sound Level (Time-Average Sound Level)
 - ² Medium Trucks
 - ³ Heavy Trucks

General Notes: Temperature 63 degrees, partly cloudy, 2 mph northeasterly wind.

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

Traffic Noise Modeling

The Caltrans' Sound32 noise model was calibrated first, before using the model to evaluate existing and future noise levels from traffic. The same traffic volume and vehicle composition ratios counted during the noise measurements were used to calibrate the model and verify the input used in the noise model. For calibration, the modeled existing traffic speed was 30 mph along State Street, consistent with that observed during the period of the noise measurements. Heavy trucks accounted for approximately 1 percent of the traffic volume, while medium trucks accounted for approximately 2 percent of the traffic volume. For Hitchcock Way traffic speed was modeled at 30 mph. Heavy trucks accounted for 0 percent of the Hitchcock Way traffic volume, while medium trucks accounted for approximately 2 percent of the traffic volume.

The modeled L_{eq} values for Site 1 and Site 2 are within one dB of the measured noise level. These results generally confirm the assumptions used in the noise model.

Based upon information regarding the average percentage composition of vehicle types for the adjacent portion of State Street as provided by ATE (2005), a vehicle mix of 1.5 percent medium trucks and 0.3 percent heavy trucks was employed in the model for evaluation of existing and future anticipated noise levels from the adjacent segments of State Street and Hitchcock Way. State Street was modeled with a traffic speed of 35 MPH for the existing and future noise evaluations, consistent with the posted speed; the posted speed of 30 MPH was used for the evaluation of traffic noise from Hitchcock Way.

The modeled existing noise level is 71 dB CNEL at Site 1. The modeled existing noise level is 65 dB CNEL at Site 2. It should be noted that these noise levels are in terms of the CNEL and not the L_{eq} as shown in Table 1. It should also be noted Site 1 and Site 2 represent the noise exposure of an unshielded receiver; these receptor locations each have unobstructed exposure to traffic noise on the adjacent roadway and are along the subject property boundary.

3.0 ANALYSIS

3.1 Transportation-Related Noise (Exterior)

State Street is classified as a Major Arterial in the City's General Plan and will be one of the primary noise sources at the project site in the future. In the year 2030, State Street west of Hitchcock Way will carry approximately 30,090 ADT (ATE 2005).

DUDEK

4435-01

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

Hitchcock Way is classified as an Arterial in the City's General Plan and will be the other primary noise source at the project site in the future. In the year 2030, Hitchcock Way south of State Street will carry approximately 6,600 ADT (ATE 2005).

Based upon the proposed project design, the future exterior noise levels from Year 2030 traffic within the proposed exterior living areas of the residential condominium units have been calculated. The calculation of future noise levels was performed using Sound32, inputting the proposed structural development, and placing a noise 'receptor' in each of the proposed exterior living spaces of the project; the results are presented in the following table.

TABLE 2
Calculated Future Transportation-Related Sound Levels
in Exterior Living Spaces

Outdoor Space	Modeled Future Sound Level
Unit 1 Terrace	57 dB CNEL
Unit 2 Terrace	56 dB CNEL
Unit 3 Terrace	56 dB CNEL
Unit 4 Terrace	56 dB CNEL
Unit 5 Terrace	56 dB CNEL
Unit 6 Terrace	56 dB CNEL
Unit 7 Terrace	56 dB CNEL
Unit 8 Terrace	56 dB CNEL
Unit 9 Terrace	57 dB CNEL
Unit 10 Terrace	54 dB CNEL
Unit 11 Terrace	58 dB CNEL
Unit 12 Terrace	59 dB CNEL
Unit 13 Terrace	54 dB CNEL
Unit 14 Terrace	64 dB CNEL
Unit 15 Terrace	64 dB CNEL

Within the proposed exterior living areas for Units 1-13, future sound levels associated with Year 2030 traffic along State Street and Hitchcock Way are calculated to range from 54 to 59 dB CNEL. The proposed exterior living areas for Units 1-13 would therefore be within the City's

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

adopted exterior noise criteria of 60 dB CNEL maximum. No mitigation is required for the exterior living areas associated with Units 1-13.

The Unit 14 and Unit 15 second-floor exterior balcony / terrace area facing State Street would have unmitigated noise of 64 dB CNEL. This noise level would exceed the City of Santa Barbara standard of 60 dB CNEL for residential exterior living areas. Mitigation would be required in order to achieve compliance with the 60 dB CNEL criterion for the Unit 14 and Unit 15 terrace / balcony area.

3.2 Commercial Equipment / Operations Noise (Exterior)

A conceptual design plan has been prepared that indicates mechanical equipment would be located within the basement and rooftop of the Whole Foods and Circuit City stores. The anticipated mechanical equipment has been previously described in Section 1.1.2 of this report. Also, a driveway for delivery trucks would be located at the southeast corner of the site with access via Hitchcock Way. To determine the noise level that would be produced by the mechanical equipment, a noise level comparison of a similar facility was conducted based on noise measurements at the Whole Foods store located in Santa Clarita, California. Based on conversations with the Whole Foods architects, the existing Whole Foods in Santa Clarita and the proposed Whole Foods store have similar design components (Cary Architects 2006). The Whole Foods rooftop equipment source sound levels used in this report were based on noise measurements conducted at the Whole Foods store in Santa Clarita during operation on December 8, 2006.

The mechanical equipment anticipated to be used at the Circuit City store consists of an approximate 30-ton and an approximate 7.5 ton, packaged rooftop HVAC units. Also, a 35 kW emergency generator would be installed adjacent to the packaged rooftop units. Manufacturer's data for similar size equipment was used to determine the noise level associated with the rooftop package units and generator.

In addition to the rooftop mechanical equipment, noise at the rooftop level would also be generated by vehicles operating within the roof-top parking lots. Noise associated with the rooftop parking lot areas would include opening and shutting of car doors, starting engines in addition to the vehicle pass-bys. The rooftop parking area would consist of approximately 60 parking spaces above the Whole Foods store and 45 parking spaces above the Circuit City

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

building. Based on the published data, the SEL for each vehicle within the parking lot would be 68 dB at a distance of 50 feet (FTA 1995). This parking lot noise source level was used to determine the noise level that would be associated with the roof-top parking lots.

The noise levels associated with the mechanical equipment and roof-top parking lots at the project site have been calculated based on the conceptual layout, noise measurements conducted at a similar Whole Foods store, and manufacturer's data for similar size equipment. The applicable noise level limits require that the noise level not exceed 60 dB CNEL at the residential units. The rooftop equipment and parking lot noise level would range from approximately 58 to 64 dB at multi-family Units 1-9 adjacent to the Whole Foods roof parking area and 57 to 60 dB CNEL at multi-family Units 10-13 adjacent to the Circuit City roof parking area. Consequently, at Units 1-9, the noise level would exceed the City's 60 dB CNEL noise criteria, primarily due to noise generated from the mechanical units located at the west end of the parking lot.

The Whole Foods store basement would have various mechanical equipment including an evaporative condenser, emergency generator and refrigeration units within a steel enclosure. Noise outside the basement from this equipment would primarily occur along the west side of the building where a louver at the basement would be located. Based on manufacturer's data for the type of equipment anticipated to be used, the preliminary floor plans, and preliminary mechanical design information, the noise level at the closest multi-family dwelling (Unit 1) would be approximately 67 dB CNEL. This noise level would exceed the City's noise criteria and would result in a significant noise impact if not mitigated.

Delivery trucks would access the site from Hitchcock Way and drive down a ramp to the enclosed basement delivery area. The residents along the ramp (i.e., multi-family units 9-13) would be exposed to trucks arriving and departing the site along this ramp. The noise level would be approximately 56 dB CNEL or less at the outdoor terrace areas at units 9, 11, 12 and 13 with the proposed three-foot high solid perimeter terrace level wall. This noise level would comply with the City's noise guideline. The terrace at Unit 10 would be on the opposite side of the building (west side) away from the driveway, and would experience noise levels less than 35 dB CNEL associated with the delivery truck noise.

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

3.3 Interior Noise

A detailed interior noise analysis was not conducted at this preliminary project design phase. However, the following conceptual discussion is provided for interior noise concerns.

Standard construction materials and techniques for a multiple family development normally result in a minimum exterior to interior noise attenuation of 15 dB. Therefore, an exterior noise exposure not exceeding 60 dB CNEL would result in interior noise levels of 45 dB CNEL or less.

While noise exposure levels within exterior living areas for Units 1-13 have been calculated not to exceed 59 dB CNEL, these noise levels would be attributed at some of the locations to building elements that provide shielding from direct traffic noise exposure along Hitchcock Way. In particular, Units 11-13 incorporate a terrace that occupies a "pocket" with respect to the main building façade. For this reason, future exterior noise levels incident upon the building façade for Units 11-13 could exceed 60 dB CNEL due to traffic noise. Also, some of the rooms in Units 9-13 could reach approximately 62 dB CNEL due to delivery truck noise. The future interior noise levels within Units 9-13 could exceed the City and State's interior noise standard of 45 dB CNEL, unless mitigation measures are provided.

The predicted future noise levels within exterior living spaces for Unit 14 and Unit 15 would range up to 64 dB CNEL. With the windows open or closed, the interior noise level within proposed Unit 14 and Unit 15 would exceed the City and State's interior noise standard of 45 dB CNEL unless mitigation measures are provided.

4.0 MITIGATION

Exterior Noise

To achieve compliance with the 60 dB CNEL criterion for the proposed Unit 14 and Unit 15 second floor State Street balcony / terrace would require a minimum six foot high sound wall around the perimeter of the space or a redesign of the area to provide other shielding from the building shell. The height requirement is relative to the balcony floor elevation. The prescribed sound wall treatment for this exterior space would attenuate the noise level to 60 dB CNEL or less.

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

The materials used in the construction of the sound wall are required to have a minimum surface density of 3.5 pounds per square foot. They may consist of masonry material, Plexiglas, tempered glass, or a combination of these materials. The barriers must be designed so there are no openings or cracks.

Figure 10 provides an illustration of the location and extent of the sound wall described in the mitigation discussion above.

Interior Noise

To comply with the City and State's 45 dB CNEL interior noise standard, an interior noise analysis will be required for the project prior to issuance of building permits.

The interior noise study may conclude for Units 9-13 that mechanical ventilation and/or air conditioning system and possibly sound-rated windows for the south and east façade of the structure are necessary to achieve the interior noise standard.

The interior noise study will most likely require mechanical ventilation and/or air conditioning system and possibly sound-rated windows for the State Street façade of the structure containing Unit 14 and Unit 15.

Mechanical Equipment Noise

Preliminarily, the rooftop noise at the Whole Foods Fan Groups 3 and 4 (i.e, the fans at the west end of the parking lot) could be mitigated with a six-foot high sound wall around the units in this area. The sound wall could be made of tempered glass or acrylic glass so that visibility for drivers in the parking lot could be maintained. With a six-foot wall the noise is anticipated to be mitigated to less than 60 dB CNEL

Preliminarily, the noise from the Whole Foods basement area could be mitigated by installing an approximate five-foot long sound attenuator immediately before the louver. With this measure the sound level is anticipated to be mitigated to less than 60 dB CNEL at the multi-family units. Other noise abatement treatments may also be appropriate such as a installing an acoustical louver, using sound absorbing materials or a plenum chamber within the interior of the

Environmental Noise Study
Whole Foods Commercial Center, Santa Barbara California

mechanical room. These measures are preliminary and subject to change during the facility design phase to ensure appropriate noise abatement measures are implemented.


A noise study will be prepared prior to the final facility design approval to ensure that necessary noise abatement measures incorporated into the building and site plans effectively mitigate the equipment noise to 60 dB CNEL or less at the adjacent multi-family units.

- - - -

This concludes our noise assessment, if you have any questions please call me.

Very truly yours,

Dudek



Mike J. Komula
Acoustician

MJK/tsf

att.: Figures 1-10

DUDEK

4435-01

12/19/2006

15

Environmental Noise Study

Whole Foods Commercial Center, Santa Barbara California

REFERENCES

Associated Transportation Engineers (ATE), November 21, 2005, *Traffic Volume Data for the Circuit City/Whole Foods Project - City of Santa Barbara*.

California Department of Transportation (Caltrans), June 1983, *User's Instructions for SOUND32 (FHWA/CA-83/06)*.

California Department of Transportation (Caltrans), 1987, *California Vehicle Noise Emission Levels, (FHWA/CA/TL-87/03)*.

California Department of Transportation (Caltrans), 2004, *2002 Annual Average Daily Truck Traffic on the California State Highway System*.

Cearnal Andrulatis Architects, *Site Plan, Floor Plans, Elevations, State & Hitchcock - Whole Foods & Circuit City*, May 2006.

Federal Transit Administration, April 1995. *Transit Noise and Vibration Impact Assessment*.

City of Santa Barbara, August 1979. *City of Santa Barbara General Plan Noise Element*.

City of Santa Barbara, *30-Day Development Application Review For 3757-3771 State Street*, December 5, 2005.

City of Santa Barbara, *Final Development Application Review For 3757-3771 State Street*, May 30, 2006.

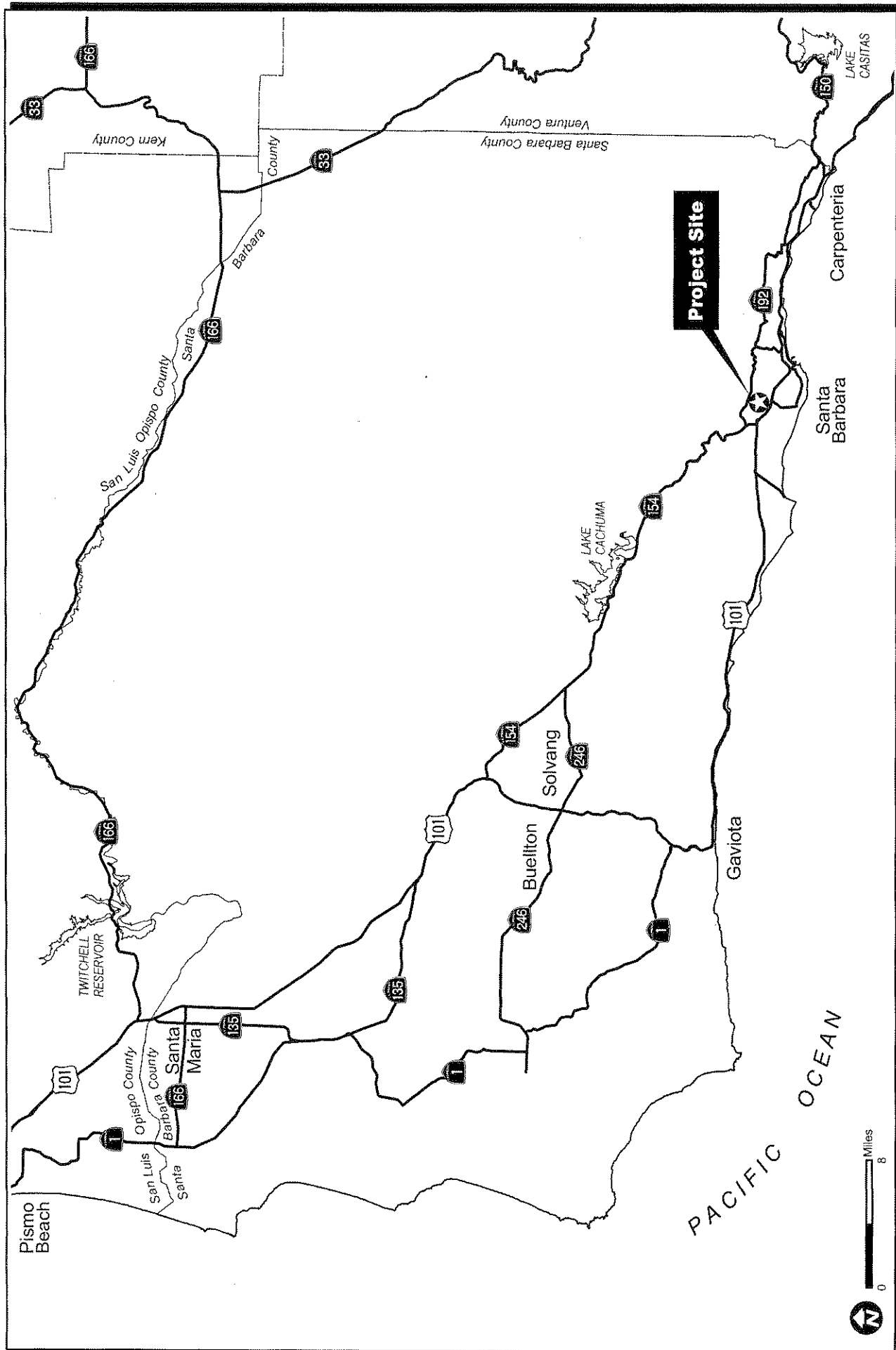


FIGURE
1

Whole Foods Commercial Center Environmental Noise Study Regional Location

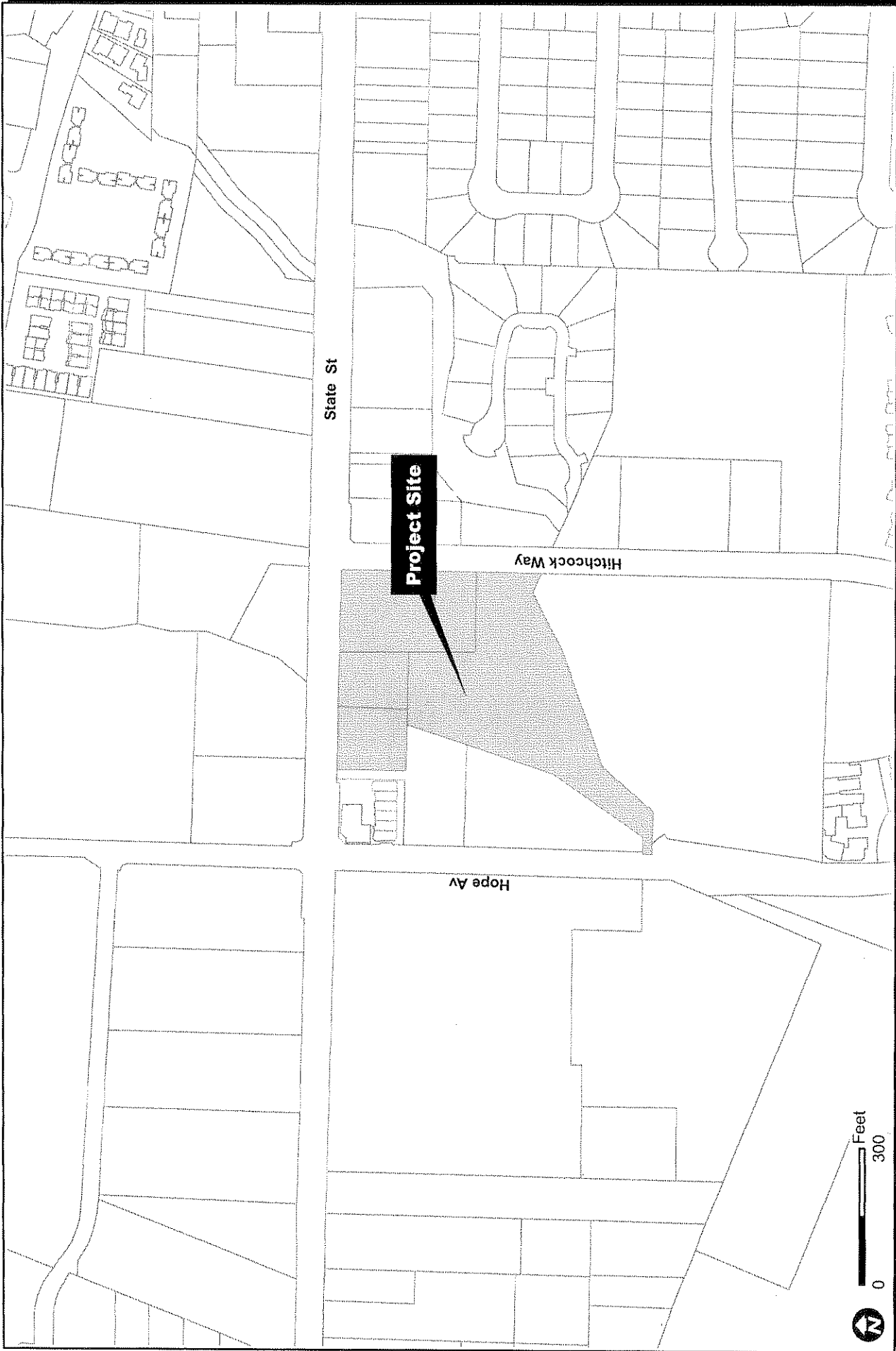
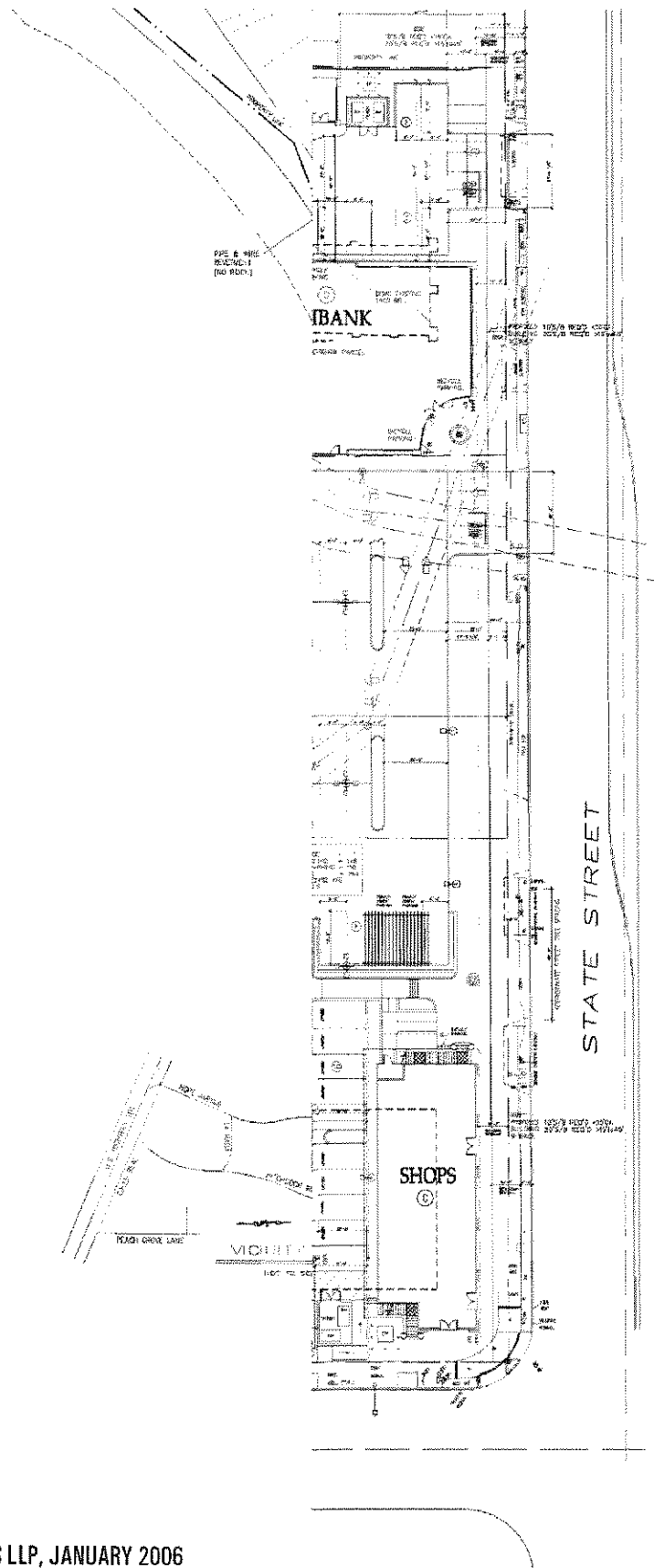


FIGURE
2

Whole Foods Commercial Center Environmental Noise Study
Project Location



SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006



SCALE: 1" = 60'

Commercial Center Environmental Noise Study
Site Plan

FIGURE
3

UNITS 1-9

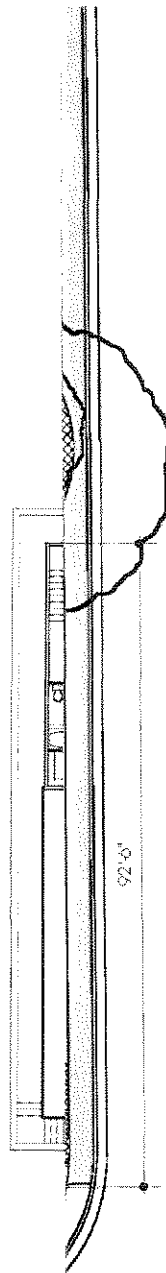


NTS

SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006

Commercial Center Environmental Noise Study
for Residential Components

FIGURE
4



3RD FL 1ST FLOOR PLAN

Scale: 1" = 20' Scale: 1" = 20' ft

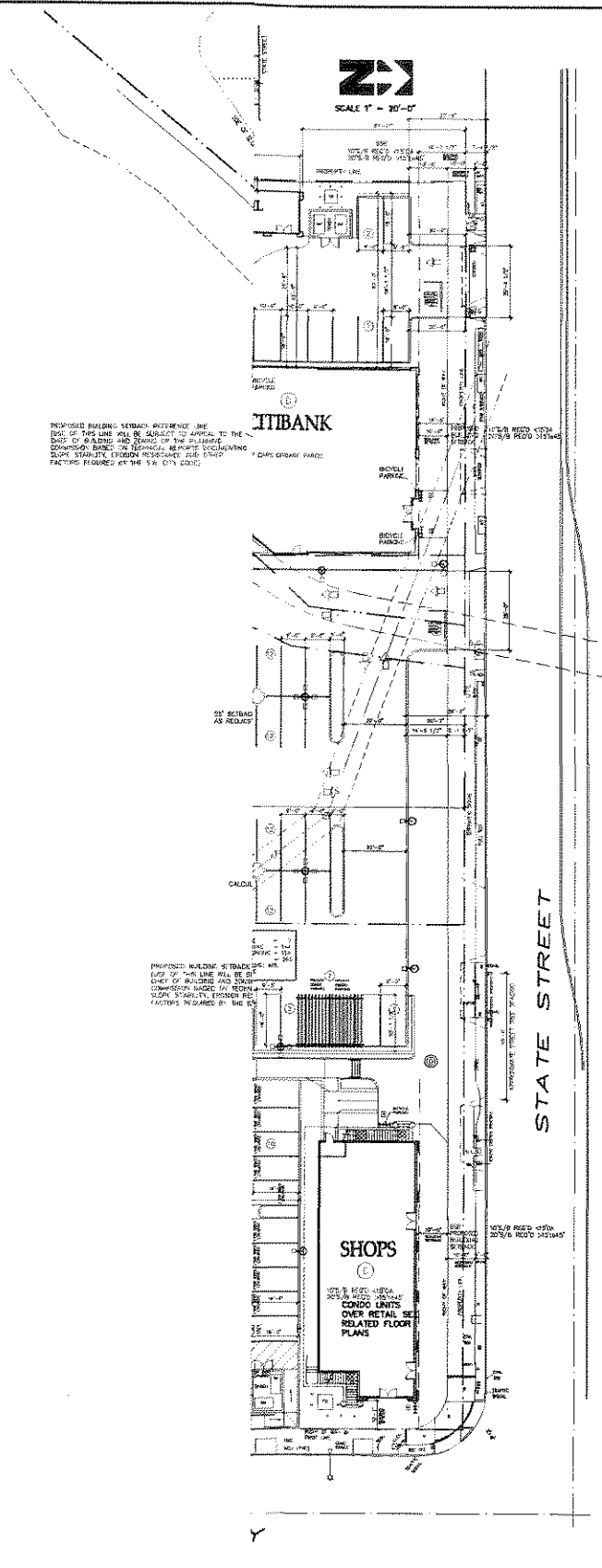
SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006



NTS

Commercial Center Environmental Noise Study
for Residential Components

FIGURE
6

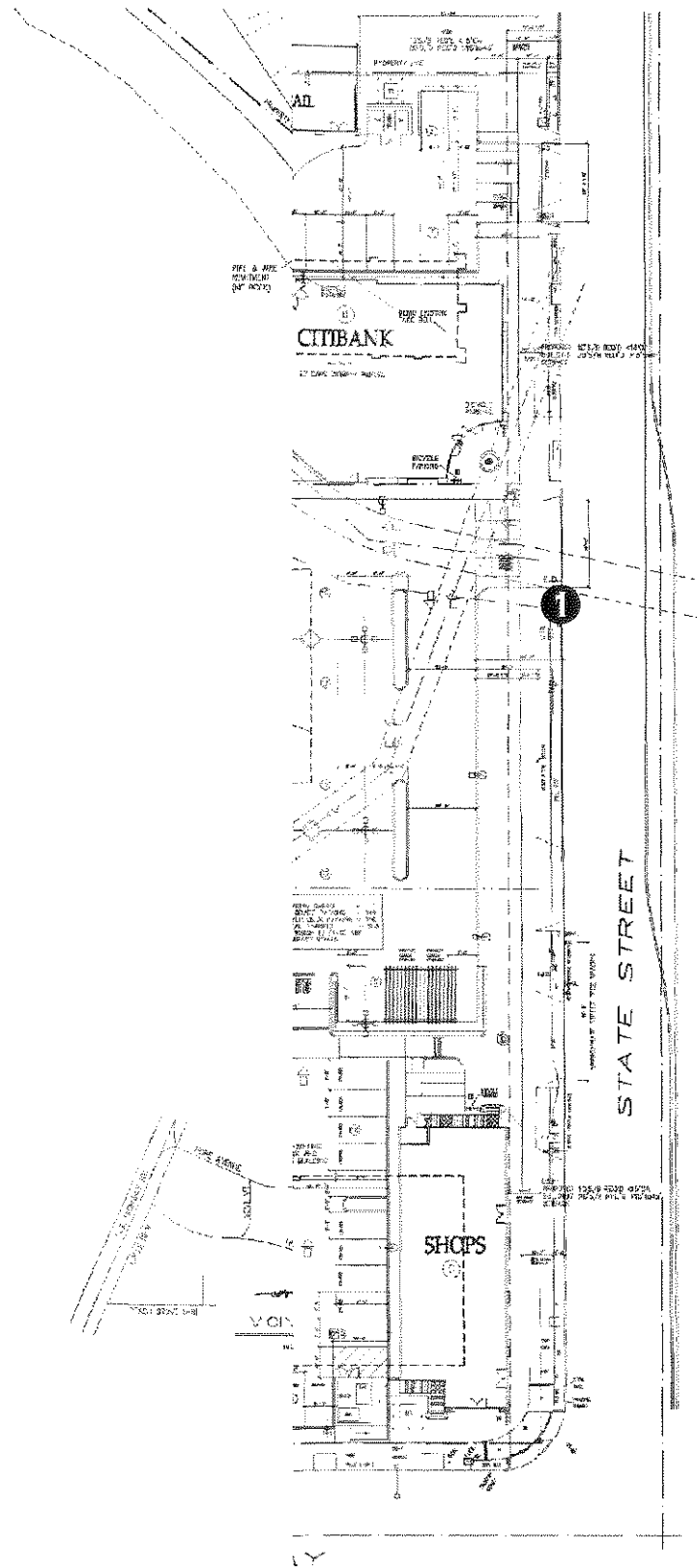


SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006



Special Center Environmental Noise Study
Roof/Parking Level Plan

FIGURE
8



SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006

ocial Center Environmental Noise Study
Noise Measurement Locations

FIGURE
9

3rd FLOOR PLAN

1/8" = 20'



SOURCE: CEAMAL ANDRULAITIS LLP, JANUARY 2006

ATTACHMENT 1

DEFINITIONS

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level, (dB[A])	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level, (CNEL)	CNEL is the A-weighted equivalent continuous sound exposure level for a 24-hour period with a ten dB adjustment added to sound levels occurring during nighttime hours (10 pm to 7 am) and a five dB adjustment added to the sound levels occurring during the evening hours (7 pm to 10 pm).
Decibel, (dB)	A unit for measuring sound pressure level, equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Time-Average Sound Level, (TAV)	The sound level corresponding to a steady state sound level and containing the same total energy as a time varying signal over a given sample period. TAV is designed to average all of the loud and quiet sound levels occurring over a specific time period.
Sound Transmission Class, (STC)	A single number rating of the noise reduction of a building element.

ATTACHMENT 2

Noise Calculations

Formatted Input_future
 **** Sound 2000 (Caltrans Version of Stamina2/Optima) ****

INPUT DATA FILE : P:\300.Environmental\Noise Studies\4435 - whole
 Foods\4435_whole_Foods.fut.s32
 DATE : 3/14/2006

WHOLE FOODS SANTA BARBARA - FUTURE

=====

TRAFFIC DATA

LANE NO.	AUTO		MEDIUM TRKS		HEAVY TRKS		DESCRIPTION
	VPH	MPH	VPH	MPH	VPH	MPH	
1	1478	35	23	35	4	35	EASTBOUND LANE GROUP
2	1478	35	23	35	4	35	WESTBOUD LANE GROUP
3	324	30	5	30	1	30	NORTHBOUND
4	324	30	5	30	1	30	SOUTHBOUND

=====

LANE DATA

LANE NO.	SEG. NO.	GRADE COR.	X	Y	Z	SEGMENT DESCRIPTION	LANE DESCRIPTION
EASTBOUND	1	N	3017.0	-3354.0	202.0	EAST END	STATE STREET -
	2	N	3017.0	-3149.0	199.0		
	3	N	3017.0	-3041.0	198.0		
	4	N	3018.0	-2926.0	198.0		
	5	N	3019.0	-2821.0	198.0		
	6	N	3019.0	-2725.0	197.0		
	7	N	3020.0	-2614.0	196.0		
	8	N	3020.0	-2528.0	196.0		
	9	N	3020.0	-2412.0	196.0		
	10	N	3026.0	-2299.0	195.0		
	11	N	3027.0	-2075.0	193.0		
	12	N	3028.0	-1883.0	190.0		
WESTBOUND			3029.0	-1700.0	187.0	WEST END	
	2	N	3057.0	-3354.0	202.0	EAST END	STATE STREET -
	2	N	3057.0	-3149.0	199.0		
	3	N	3057.0	-3041.0	198.0		
	4	N	3058.0	-2926.0	198.0		
	5	N	3059.0	-2821.0	198.0		
	6	N	3059.0	-2725.0	197.0		
	7	N	3060.0	-2614.0	196.0		
	8	N	3060.0	-2528.0	196.0		
	9	N	3060.0	-2412.0	196.0		
	10	N	3056.0	-2299.0	195.0		
	11	N	3057.0	-2075.0	193.0		
NORTHBOUND	12	N	3058.0	-1883.0	190.0		
			3059.0	-1700.0	187.0	WEST END	
	3	N	3037.0	-3041.0	198.0	NORTH END	HITCHCOCK WAY -
	2	N	2955.0	-3041.0	197.0		
	3	N	2893.0	-3041.0	195.0		
	4	N	2811.0	-3040.0	193.0		
	5	N	2707.0	-3040.0	190.0		
	6	N	2599.0	-3039.0	186.0		
	7	N	2477.0	-3038.0	185.0		
	8	N	2369.0	-3038.0	184.0		

			Formatted	Input_future		
4	1	N	2272.0	-3037.0	184.0	SOUTH END
			3037.0	-3021.0	198.0	NORTH END
	HITCHCOCK WAY -					
	2	N	2955.0	-3021.0	197.0	
	3	N	2893.0	-3021.0	195.0	
	4	N	2811.0	-3020.0	193.0	
	5	N	2707.0	-3020.0	190.0	
	6	N	2599.0	-3019.0	186.0	
	7	N	2477.0	-3018.0	185.0	
	8	N	2369.0	-3018.0	184.0	
		2272.0	-3017.0	184.0	SOUTH END	

BARRIER DATA

Barrier No. 1 Barrier Description: STATE STREET MEDIAN - EAST
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)		BARRIER HEIGHTS AT ENDS
1	3037.0	-3354.0	202.0	203.0	B1 P1	* 1
2	3037.0	-3149.0	199.0	200.0	B1 P2	* 1
	3037.0	-3051.0	198.0	199.0	B1 P3	* 1

Barrier No. 2 Barrier Description: STATE STREET MEDIAN - WEST
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)		BARRIER HEIGHTS AT ENDS
1	3037.0	-3011.0	198.0	199.0	B2 P1	* 1
2	3038.0	-2926.0	198.0	199.0	B2 P2	* 1
3	3039.0	-2821.0	198.0	199.0	B2 P3	* 1
4	3039.0	-2725.0	197.0	198.0	B2 P4	* 1
5	3040.0	-2614.0	196.0	197.0	B2 P5	* 1
6	3040.0	-2528.0	196.0	197.0	B2 P6	* 1
7	3040.0	-2412.0	196.0	197.0	B2 P7	* 1
8	3041.0	-2299.0	195.0	196.0	B2 P8	* 1
9	3042.0	-2075.0	193.0	194.0	B2 P9	* 1
10	3043.0	-1883.0	190.0	191.0	B2 P10	* 1
	3044.0	-1700.0	187.0	188.0	B2 P11	* 1

Barrier No. 3 Barrier Description: CITIBANK Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)		BARRIER HEIGHTS AT ENDS
1	2969.0	-2689.0	198.0	216.0	CITIBANK	* 18
2	2989.0	-2669.0	198.0	216.0	B3 P2	* 18
3	2987.0	-2625.0	198.0	216.0	B3 P3	* 18
4	2923.0	-2624.0	198.0	216.0	B3 P4	* 18

			Formatted	Input_future				
5	2914.0	-2633.0	198.0	216.0	B3	P5	*	18
6	2914.0	-2676.0	198.0	216.0	B3	P6	*	18
7	2930.0	-2690.0	198.0	216.0	B3	P7	*	18
	2969.0	-2689.0	198.0	216.0	B3	P8	*	18

Barrier No. 4 Barrier Description: CORNER COMMERCIAL / RESIDENTIAL
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2952.0	-2895.0	198.0	216.5 B4 P1	* 18.5
2	2984.0	-2894.0	198.0	216.5 B4 P2	* 18.5
3	2984.0	-2895.0	198.0	216.5 B4 P3	* 18.5
4	2987.0	-2899.0	198.0	216.5 B4 P4	* 18.5
5	2985.0	-2990.0	198.0	216.5 B4 P5	* 18.5
6	2962.0	-2990.0	198.0	216.5 B4 P6	* 18.5
7	2962.0	-2986.0	198.0	216.5 B4 P7	* 18.5
8	2952.0	-2986.0	198.0	216.5 B4 P8	* 18.5
	2952.0	-2895.0	198.0	216.5 B4 P9	* 18.5

Barrier No. 5 Barrier Description: CIRCUIT CITY / WHOLE FOODS
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2779.0	-2990.0	192.0	226.0 B5 P1	* 34
2	2781.0	-2694.0	192.0	226.0 B5 P2	* 34
3	2523.0	-2619.0	192.0	226.0 B5 P3	* 34
4	2517.0	-2628.0	192.0	226.0 B5 P4	* 34
5	2543.0	-2693.0	192.0	226.0 B5 P5	* 34
6	2559.0	-2808.0	192.0	226.0 B5 P6	* 34
7	2592.0	-2869.0	192.0	226.0 B5 P7	* 34
8	2603.0	-2884.0	192.0	226.0 B5 P8	* 34
9	2633.0	-2884.0	192.0	226.0 B5 P9	* 34
10	2637.0	-2989.0	192.0	226.0 B5 P10	* 34
	2779.0	-2990.0	192.0	226.0 B5 P11	* 34

Barrier No. 6 Barrier Description: UNITS 10-13 THIRD LEVEL
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2633.0	-2853.0	226.0	239.0 UNITS 10-13	* 13
2	2633.0	-2959.0	226.0	239.0 B6 P2	* 13
3	2645.0	-2959.0	226.0	239.0 B6 P3	* 13
4	2645.0	-2989.0	226.0	239.0 B6 P4	* 13
5	2673.0	-2989.0	226.0	239.0 B6 P5	* 13

6	2673.0	-2853.0	226.0	239.0	B6 P6	*	13
	2633.0	-2853.0	226.0	239.0	B6 P7	*	13

Barrier No. 7 Barrier Description: UNITS 2-9 THIRD LEVEL Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2599.0	-2654.0	226.0	239.0	UNITS 2-9 LEVEL 3 * 13
2	2600.0	-2777.0	226.0	239.0	B7 P2 * 13
3	2635.0	-2851.0	226.0	239.0	B7 P3 * 13
4	2607.0	-2851.0	226.0	239.0	B7 P4 * 13
5	2572.0	-2777.0	226.0	239.0	B7 P5 * 13
6	2571.0	-2654.0	226.0	239.0	B7 P6 * 13
	2599.0	-2654.0	226.0	239.0	B7 P7 * 13

Barrier No. 8 Barrier Description: UNIT 1 - LEVEL 3 Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2599.0	-2654.0	226.0	239.0	UNIT 1 * 13
2	2611.0	-2654.0	226.0	239.0	B8 P2 * 13
3	2611.0	-2642.0	226.0	239.0	B8 P3 * 13
4	2631.0	-2648.0	226.0	239.0	B8 P4 * 13
5	2628.0	-2654.0	226.0	239.0	B8 P5 * 13
	2611.0	-2654.0	226.0	239.0	B8 P6 * 13

Barrier No. 9 Barrier Description: CORNER BUILDING. LEVEL 2 Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

SEG	X	Y	GROUND (ZO)	TOP (Z)	BARRIER HEIGHTS AT ENDS
1	2952.0	-2981.0	213.0	230.0	CORNER BLD * 17
2	2952.0	-2898.0	213.0	230.0	B9 P2 * 17
3	2978.0	-2898.0	213.0	230.0	B9 P3 * 17
4	2978.0	-2981.0	213.0	230.0	B9 P4 * 17
	2952.0	-2981.0	213.0	230.0	B9 P5 * 17

RECEIVER DATA

REC

NO.	X	Y	Formatted Z	Input_future ID
1	3006.0	-2727.0	201.0	M1
2	2704.0	-3000.0	195.0	M2
3	2618.0	-2651.0	254.0	UNIT 1 TERRACE
4	2579.0	-2661.0	254.0	UNIT 2 TERRA
5	2579.0	-2676.0	254.0	UNIT 3 TERRACE
6	2579.0	-2700.0	254.0	UNIT 4 TERRACE
7	2579.0	-2715.0	254.0	UNIT 5 TERRACE
8	2579.0	-2747.0	254.0	UNIT 6 TERRACE
9	2593.0	-2780.0	254.0	UNIT 7 TERRACE
10	2601.0	-2808.0	254.0	UNIT 8 TERRACE
11	2613.0	-2833.0	254.0	UNIT 9 TERRACE
12	2617.0	-2880.0	231.0	UNIT 10 TERRACE
13	2640.0	-2893.0	254.0	UNIT 11 TERRACE
14	2629.0	-2932.0	254.0	UNIT 12 TERRACE
15	2642.0	-2974.0	231.0	UNIT 13 TERRACE
16	2981.0	-2904.0	218.0	UNIT 14 TERRACE
17	2981.0	-2974.0	218.0	UNIT 15 TERRACE

DROP-OFF RATES

LANE No.	RECEIVER NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17													
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

4435_whole_foods_future
SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
WHOLE FOODS SANTA BARBARA - FUTURE

1

BARRIER DATA

BAR ELE	0	1	BARRIER HEIGHTS					6	7	BAR ID	LENGTH	TYPE
			2	3	4	5						
1	-	1.*							B1 P1	205.0		
2	-	1.*							B1 P2	98.0		
3	-	1.*							B2 P1	85.0		
4	-	1.*							B2 P2	105.0		
5	-	1.*							B2 P3	96.0		
6	-	1.*							B2 P4	111.0		
7	-	1.*							B2 P5	86.0		
8	-	1.*							B2 P6	116.0		
9	-	1.*							B2 P7	113.0		
10	-	1.*							B2 P8	224.0		
11	-	1.*							B2 P9	192.0		
12	-	1.*							B2 P10	183.0		
13	-	18.*							CITIBANK	28.3		
14	-	18.*							B3 P2	44.0		
15	-	18.*							B3 P3	64.0		
16	-	18.*							B3 P4	12.7		
17	-	18.*							B3 P5	43.0		
18	-	18.*							B3 P6	21.3		
19	-	18.*							B3 P7	39.0		
20	-	19.*							B4 P1	32.0		
21	-	19.*							B4 P2	1.0		
22	-	19.*							B4 P3	5.0		
23	-	19.*							B4 P4	91.0		
24	-	19.*							B4 P5	23.0		
25	-	19.*							B4 P6	4.0		
26	-	19.*							B4 P7	10.0		
27	-	19.*							B4 P8	91.0		
28	-	34.*							B5 P1	296.0		
29	-	34.*							B5 P2	268.7		
30	-	34.*							B5 P3	10.8		
31	-	34.*							B5 P4	70.0		
32	-	34.*							B5 P5	116.1		
33	-	34.*							B5 P6	69.4		
34	-	34.*							B5 P7	18.6		
35	-	34.*							B5 P8	30.0		
36	-	34.*							B5 P9	105.1		
37	-	34.*							B5 P10	142.0		
38	-	13.*							UNITS 10	106.0		
39	-	13.*							B6 P2	12.0		
40	-	13.*							B6 P3	30.0		
41	-	13.*							B6 P4	28.0		
42	-	13.*							B6 P5	136.0		
43	-	13.*							B6 P6	40.0		
44	-	13.*							UNITS 2-	123.0		

45	-	13.*	B7 P2	81.9
46	-	13.*	B7 P3	28.0
47	-	13.*	B7 P4	81.9
48	-	13.*	B7 P5	123.0
49	-	13.*	B7 P6	28.0
50	-	13.*	UNIT 1	12.0
51	-	13.*	B8 P2	12.0
52	-	13.*	B8 P3	20.9
53	-	13.*	B8 P4	6.7
54	-	13.*	B8 P5	17.0

```

1
REC REC ID      DNL  PEOPLE  LEQ(CAL)

```

1	M1	67.	500.	73.0
2	M2	67.	500.	64.9
3	UNIT 1 T	67.	500.	56.5
4	UNIT 2 T	67.	500.	55.9
5	UNIT 3 T	67.	500.	55.8
6	UNIT 4 T	67.	500.	55.8
7	UNIT 5 T	67.	500.	55.8
8	UNIT 6 T	67.	500.	55.9
9	UNIT 7 T	67.	500.	56.2
10	UNIT 8 T	67.	500.	56.5
11	UNIT 9 T	67.	500.	57.0
12	UNIT 10	67.	500.	53.6
13	UNIT 11	67.	500.	58.1
14	UNIT 12	67.	500.	58.7
15	UNIT 13	67.	500.	54.1
16	UNIT 14	67.	500.	63.6
17	UNIT 15	67.	500.	64.4

[illegible]

1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 18.18.18.18.18.18.18.19.19.19.19.19.19.
19.19.34.34.34.34.34.34.34.34.34.34.13.13.13.13.13.13.13.13.13.13.13.13.
13.13.13.13.

Formatted Input_mitigated
 **** Sound 2000 (Caltrans Version of Stamina2/Optima) ****

INPUT DATA FILE : P:\300.Environmental\Noise Studies\4435 - whole
 Foods\4435_whole_Foods.mit.s32
 DATE : 3/14/2006

WHOLE FOODS SANTA BARBARA - MITIGATED

=====

TRAFFIC DATA

| LANE
NO. | AUTO | | MEDIUM TRKS | | HEAVY TRKS | | DESCRIPTION |
|-------------|------|-----|-------------|-----|------------|-----|----------------------|
| | VPH | MPH | VPH | MPH | VPH | MPH | |
| 1 | 1478 | 35 | 23 | 35 | 4 | 35 | EASTBOUND LANE GROUP |
| 2 | 1478 | 35 | 23 | 35 | 4 | 35 | WESTBOUD LANE GROUP |
| 3 | 324 | 30 | 5 | 30 | 1 | 30 | NORTHBOUND |
| 4 | 324 | 30 | 5 | 30 | 1 | 30 | SOUTHBOUND |

=====

LANE DATA

| LANE
NO. | SEG.
NO. | GRADE
COR. | X | Y | Z | SEGMENT
DESCRIPTION | LANE
DESCRIPTION |
|-------------|-------------|---------------|--------|---------|-------|------------------------|---------------------|
| EASTBOUND | 1 | N | 3017.0 | -3354.0 | 202.0 | EAST END | STATE STREET - |
| | 2 | N | 3017.0 | -3149.0 | 199.0 | | |
| | 3 | N | 3017.0 | -3041.0 | 198.0 | | |
| | 4 | N | 3018.0 | -2926.0 | 198.0 | | |
| | 5 | N | 3019.0 | -2821.0 | 198.0 | | |
| | 6 | N | 3019.0 | -2725.0 | 197.0 | | |
| | 7 | N | 3020.0 | -2614.0 | 196.0 | | |
| | 8 | N | 3020.0 | -2528.0 | 196.0 | | |
| | 9 | N | 3020.0 | -2412.0 | 196.0 | | |
| | 10 | N | 3026.0 | -2299.0 | 195.0 | | |
| | 11 | N | 3027.0 | -2075.0 | 193.0 | | |
| | 12 | N | 3028.0 | -1883.0 | 190.0 | | |
| WESTBOUND | | | 3029.0 | -1700.0 | 187.0 | WEST END | |
| | 2 | N | 3057.0 | -3354.0 | 202.0 | EAST END | STATE STREET - |
| | 2 | N | 3057.0 | -3149.0 | 199.0 | | |
| | 3 | N | 3057.0 | -3041.0 | 198.0 | | |
| | 4 | N | 3058.0 | -2926.0 | 198.0 | | |
| | 5 | N | 3059.0 | -2821.0 | 198.0 | | |
| | 6 | N | 3059.0 | -2725.0 | 197.0 | | |
| | 7 | N | 3060.0 | -2614.0 | 196.0 | | |
| | 8 | N | 3060.0 | -2528.0 | 196.0 | | |
| | 9 | N | 3060.0 | -2412.0 | 196.0 | | |
| | 10 | N | 3056.0 | -2299.0 | 195.0 | | |
| | 11 | N | 3057.0 | -2075.0 | 193.0 | | |
| NORTHBOUND | 12 | N | 3058.0 | -1883.0 | 190.0 | | |
| | | | 3059.0 | -1700.0 | 187.0 | WEST END | |
| | 3 | N | 3037.0 | -3041.0 | 198.0 | NORTH END | HITCHCOCK WAY - |
| | 2 | N | 2955.0 | -3041.0 | 197.0 | | |
| | 3 | N | 2893.0 | -3041.0 | 195.0 | | |
| | 4 | N | 2811.0 | -3040.0 | 193.0 | | |
| | 5 | N | 2707.0 | -3040.0 | 190.0 | | |
| | 6 | N | 2599.0 | -3039.0 | 186.0 | | |
| | 7 | N | 2477.0 | -3038.0 | 185.0 | | |
| | 8 | N | 2369.0 | -3038.0 | 184.0 | | |

| | | Formatted | Input_mitigated | | |
|-----------------|-----|-----------|-----------------|-------|-----------|
| 4 | 1 N | 2272.0 | -3037.0 | 184.0 | SOUTH END |
| SOUTHBOUND | | 3037.0 | -3021.0 | 198.0 | NORTH END |
| HITCHCOCK WAY - | | | | | |
| 2 | N | 2955.0 | -3021.0 | 197.0 | |
| 3 | N | 2893.0 | -3021.0 | 195.0 | |
| 4 | N | 2811.0 | -3020.0 | 193.0 | |
| 5 | N | 2707.0 | -3020.0 | 190.0 | |
| 6 | N | 2599.0 | -3019.0 | 186.0 | |
| 7 | N | 2477.0 | -3018.0 | 185.0 | |
| 8 | N | 2369.0 | -3018.0 | 184.0 | |
| | | 2272.0 | -3017.0 | 184.0 | SOUTH END |

BARRIER DATA

Barrier No. 1 Barrier Description: STATE STREET MEDIAN - EAST
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND (ZO) | TOP (Z) | BARRIER HEIGHTS AT ENDS |
|-----|--------|---------|-------------|---------|-------------------------|
| 1 | 3037.0 | -3354.0 | 202.0 | 203.0 | B1 P1 * 1 |
| 2 | 3037.0 | -3149.0 | 199.0 | 200.0 | B1 P2 * 1 |
| | 3037.0 | -3051.0 | 198.0 | 199.0 | B1 P3 * 1 |

Barrier No. 2 Barrier Description: STATE STREET MEDIAN - WEST
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND (ZO) | TOP (Z) | BARRIER HEIGHTS AT ENDS |
|-----|--------|---------|-------------|---------|-------------------------|
| 1 | 3037.0 | -3011.0 | 198.0 | 199.0 | B2 P1 * 1 |
| 2 | 3038.0 | -2926.0 | 198.0 | 199.0 | B2 P2 * 1 |
| 3 | 3039.0 | -2821.0 | 198.0 | 199.0 | B2 P3 * 1 |
| 4 | 3039.0 | -2725.0 | 197.0 | 198.0 | B2 P4 * 1 |
| 5 | 3040.0 | -2614.0 | 196.0 | 197.0 | B2 P5 * 1 |
| 6 | 3040.0 | -2528.0 | 196.0 | 197.0 | B2 P6 * 1 |
| 7 | 3040.0 | -2412.0 | 196.0 | 197.0 | B2 P7 * 1 |
| 8 | 3041.0 | -2299.0 | 195.0 | 196.0 | B2 P8 * 1 |
| 9 | 3042.0 | -2075.0 | 193.0 | 194.0 | B2 P9 * 1 |
| 10 | 3043.0 | -1883.0 | 190.0 | 191.0 | B2 P10 * 1 |
| | 3044.0 | -1700.0 | 187.0 | 188.0 | B2 P11 * 1 |

Barrier No. 3 Barrier Description: CITIBANK Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND (ZO) | TOP (Z) | BARRIER HEIGHTS AT ENDS |
|-----|--------|---------|-------------|---------|-------------------------|
| 1 | 2969.0 | -2689.0 | 198.0 | 216.0 | CITIBANK * 18 |
| 2 | 2989.0 | -2669.0 | 198.0 | 216.0 | B3 P2 * 18 |
| 3 | 2987.0 | -2625.0 | 198.0 | 216.0 | B3 P3 * 18 |
| 4 | 2923.0 | -2624.0 | 198.0 | 216.0 | B3 P4 * 18 |

Formatted Input_mitigated

| | | | | | | | |
|---|--------|---------|-------|-------|-------|---|----|
| 5 | 2914.0 | -2633.0 | 198.0 | 216.0 | B3 P5 | * | 18 |
| 6 | 2914.0 | -2676.0 | 198.0 | 216.0 | B3 P6 | * | 18 |
| 7 | 2930.0 | -2690.0 | 198.0 | 216.0 | B3 P7 | * | 18 |
| | 2969.0 | -2689.0 | 198.0 | 216.0 | B3 P8 | * | 18 |

Barrier No. 4 Barrier Description: CORNER COMMERCIAL / RESIDENTIAL
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|-------------|----------------------------|
| 1 | 2952.0 | -2895.0 | 198.0 | 216.5 B4 P1 | * 18.5 |
| 2 | 2984.0 | -2894.0 | 198.0 | 216.5 B4 P2 | * 18.5 |
| 3 | 2984.0 | -2895.0 | 198.0 | 216.5 B4 P3 | * 18.5 |
| 4 | 2985.0 | -2899.0 | 198.0 | 216.5 B4 P4 | * 18.5 |
| 5 | 2985.0 | -2990.0 | 198.0 | 216.5 B4 P5 | * 18.5 |
| 6 | 2962.0 | -2990.0 | 198.0 | 216.5 B4 P6 | * 18.5 |
| 7 | 2962.0 | -2986.0 | 198.0 | 216.5 B4 P7 | * 18.5 |
| 8 | 2952.0 | -2986.0 | 198.0 | 216.5 B4 P8 | * 18.5 |
| | 2952.0 | -2895.0 | 198.0 | 216.5 B4 P9 | * 18.5 |

Barrier No. 5 Barrier Description: CIRCUIT CITY / WHOLE FOODS
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|--------------|----------------------------|
| 1 | 2779.0 | -2990.0 | 192.0 | 226.0 B5 P1 | * 34 |
| 2 | 2781.0 | -2694.0 | 192.0 | 226.0 B5 P2 | * 34 |
| 3 | 2523.0 | -2619.0 | 192.0 | 226.0 B5 P3 | * 34 |
| 4 | 2517.0 | -2628.0 | 192.0 | 226.0 B5 P4 | * 34 |
| 5 | 2543.0 | -2693.0 | 192.0 | 226.0 B5 P5 | * 34 |
| 6 | 2559.0 | -2808.0 | 192.0 | 226.0 B5 P6 | * 34 |
| 7 | 2592.0 | -2869.0 | 192.0 | 226.0 B5 P7 | * 34 |
| 8 | 2603.0 | -2884.0 | 192.0 | 226.0 B5 P8 | * 34 |
| 9 | 2633.0 | -2884.0 | 192.0 | 226.0 B5 P9 | * 34 |
| 10 | 2637.0 | -2989.0 | 192.0 | 226.0 B5 P10 | * 34 |
| | 2779.0 | -2990.0 | 192.0 | 226.0 B5 P11 | * 34 |

Barrier No. 6 Barrier Description: UNITS 10-13 THIRD LEVEL
Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|-------------------|----------------------------|
| 1 | 2633.0 | -2853.0 | 226.0 | 239.0 UNITS 10-13 | * 13 |
| 2 | 2633.0 | -2959.0 | 226.0 | 239.0 B6 P2 | * 13 |
| 3 | 2645.0 | -2959.0 | 226.0 | 239.0 B6 P3 | * 13 |
| 4 | 2645.0 | -2989.0 | 226.0 | 239.0 B6 P4 | * 13 |
| 5 | 2673.0 | -2989.0 | 226.0 | 239.0 B6 P5 | * 13 |

Formatted Input_mitigated

| | | | | | | | |
|---|--------|---------|-------|-------|-------|---|----|
| 6 | 2673.0 | -2853.0 | 226.0 | 239.0 | B6 P6 | * | 13 |
| | 2633.0 | -2853.0 | 226.0 | 239.0 | B6 P7 | * | 13 |

Barrier No. 7 Barrier Description: UNITS 2-9 THIRD LEVEL Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|------------|----------------------------|
| 1 | 2599.0 | -2654.0 | 226.0 | 239.0 | UNITS 2-9 LEVEL 3
* 13 |
| 2 | 2600.0 | -2777.0 | 226.0 | 239.0 | B7 P2 * 13 |
| 3 | 2635.0 | -2851.0 | 226.0 | 239.0 | B7 P3 * 13 |
| 4 | 2607.0 | -2851.0 | 226.0 | 239.0 | B7 P4 * 13 |
| 5 | 2572.0 | -2777.0 | 226.0 | 239.0 | B7 P5 * 13 |
| 6 | 2571.0 | -2654.0 | 226.0 | 239.0 | B7 P6 * 13 |
| | 2599.0 | -2654.0 | 226.0 | 239.0 | B7 P7 * 13 |

Barrier No. 8 Barrier Description: UNIT 1 - LEVEL 3 Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|------------|----------------------------|
| 1 | 2599.0 | -2654.0 | 226.0 | 239.0 | UNIT 1 * 13 |
| 2 | 2611.0 | -2654.0 | 226.0 | 239.0 | B8 P2 * 13 |
| 3 | 2611.0 | -2642.0 | 226.0 | 239.0 | B8 P3 * 13 |
| 4 | 2631.0 | -2648.0 | 226.0 | 239.0 | B8 P4 * 13 |
| 5 | 2628.0 | -2654.0 | 226.0 | 239.0 | B8 P5 * 13 |
| | 2611.0 | -2654.0 | 226.0 | 239.0 | B8 P6 * 13 |

Barrier No. 9 Barrier Description: CORNER BUILDING. LEVEL 2 Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|--------|---------|----------------|------------|----------------------------|
| 1 | 2952.0 | -2981.0 | 213.0 | 230.0 | CORNER BLD
* 17 |
| 2 | 2952.0 | -2898.0 | 213.0 | 230.0 | B9 P2 * 17 |
| 3 | 2978.0 | -2898.0 | 213.0 | 230.0 | B9 P3 * 17 |
| 4 | 2978.0 | -2981.0 | 213.0 | 230.0 | B9 P4 * 17 |
| | 2952.0 | -2981.0 | 213.0 | 230.0 | B9 P5 * 17 |

Barrier No. 10 Barrier Description: SOUNDWALL Type: Wall Barrier

Height Increment (DELZ) = 0 No. Height Changes (P)= 0

| SEG | X | Y | GROUND
(ZO) | TOP
(Z) | BARRIER
HEIGHTS AT ENDS |
|-----|---|---|----------------|------------|----------------------------|
|-----|---|---|----------------|------------|----------------------------|

Formatted Input_mitigated

| | | | | | | |
|---|--------|---------|-------|-------|------------|---|
| 1 | 2978.0 | -2898.0 | 213.0 | 219.0 | SOUNDWALL* | 6 |
| 2 | 2985.0 | -2899.0 | 213.0 | 219.0 | B10 P2 * | 6 |
| 3 | 2985.0 | -2981.0 | 213.0 | 219.0 | B10 P3 * | 6 |
| | 2978.0 | -2981.0 | 213.0 | 219.0 | B10 P4 * | 6 |

RECEIVER DATA

| REC NO. | X | Y | Z | ID |
|---------|--------|---------|-------|-----------------|
| 1 | 3006.0 | -2727.0 | 201.0 | M1 |
| 2 | 2704.0 | -3000.0 | 195.0 | M2 |
| 3 | 2618.0 | -2651.0 | 254.0 | UNIT 1 TERRACE |
| 4 | 2579.0 | -2661.0 | 254.0 | UNIT 2 TERRA |
| 5 | 2579.0 | -2676.0 | 254.0 | UNIT 3 TERRACE |
| 6 | 2579.0 | -2700.0 | 254.0 | UNIT 4 TERRACE |
| 7 | 2579.0 | -2715.0 | 254.0 | UNIT 5 TERRACE |
| 8 | 2579.0 | -2747.0 | 254.0 | UNIT 6 TERRACE |
| 9 | 2593.0 | -2780.0 | 254.0 | UNIT 7 TERRACE |
| 10 | 2601.0 | -2808.0 | 254.0 | UNIT 8 TERRACE |
| 11 | 2613.0 | -2833.0 | 254.0 | UNIT 9 TERRACE |
| 12 | 2617.0 | -2880.0 | 231.0 | UNIT 10 TERRACE |
| 13 | 2640.0 | -2893.0 | 254.0 | UNIT 11 TERRACE |
| 14 | 2629.0 | -2932.0 | 254.0 | UNIT 12 TERRACE |
| 15 | 2642.0 | -2974.0 | 231.0 | UNIT 13 TERRACE |
| 16 | 2981.0 | -2904.0 | 218.0 | UNIT 14 TERRACE |
| 17 | 2981.0 | -2974.0 | 218.0 | UNIT 15 TERRACE |

DROP-OFF RATES

| LANE No. | RECEIVER NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|----------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15 | 16 | 17 | | | | | | | | | | | | | |
| 1 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 2 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 3 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 4 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |

4435_whole_foods_mitigated
SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
WHOLE FOODS SANTA BARBARA - MITIGATED

1

BARRIER DATA

| BAR
ELE | 0 | 1 | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|---|------|-----------------|---|---|---|---|---|----------|-----------|--------|------|
| | | | 2 | 3 | 4 | 5 | 6 | 7 | | | | |
| 1 | - | 1.* | | | | | | | B1 P1 | 205.0 | | |
| 2 | - | 1.* | | | | | | | B1 P2 | 98.0 | | |
| 3 | - | 1.* | | | | | | | B2 P1 | 85.0 | | |
| 4 | - | 1.* | | | | | | | B2 P2 | 105.0 | | |
| 5 | - | 1.* | | | | | | | B2 P3 | 96.0 | | |
| 6 | - | 1.* | | | | | | | B2 P4 | 111.0 | | |
| 7 | - | 1.* | | | | | | | B2 P5 | 86.0 | | |
| 8 | - | 1.* | | | | | | | B2 P6 | 116.0 | | |
| 9 | - | 1.* | | | | | | | B2 P7 | 113.0 | | |
| 10 | - | 1.* | | | | | | | B2 P8 | 224.0 | | |
| 11 | - | 1.* | | | | | | | B2 P9 | 192.0 | | |
| 12 | - | 1.* | | | | | | | B2 P10 | 183.0 | | |
| 13 | - | 18.* | | | | | | | CITIBANK | 28.3 | | |
| 14 | - | 18.* | | | | | | | B3 P2 | 44.0 | | |
| 15 | - | 18.* | | | | | | | B3 P3 | 64.0 | | |
| 16 | - | 18.* | | | | | | | B3 P4 | 12.7 | | |
| 17 | - | 18.* | | | | | | | B3 P5 | 43.0 | | |
| 18 | - | 18.* | | | | | | | B3 P6 | 21.3 | | |
| 19 | - | 18.* | | | | | | | B3 P7 | 39.0 | | |
| 20 | - | 19.* | | | | | | | B4 P1 | 32.0 | | |
| 21 | - | 19.* | | | | | | | B4 P2 | 1.0 | | |
| 22 | - | 19.* | | | | | | | B4 P3 | 4.1 | | |
| 23 | - | 19.* | | | | | | | B4 P4 | 91.0 | | |
| 24 | - | 19.* | | | | | | | B4 P5 | 23.0 | | |
| 25 | - | 19.* | | | | | | | B4 P6 | 4.0 | | |
| 26 | - | 19.* | | | | | | | B4 P7 | 10.0 | | |
| 27 | - | 19.* | | | | | | | B4 P8 | 91.0 | | |
| 28 | - | 34.* | | | | | | | B5 P1 | 296.0 | | |
| 29 | - | 34.* | | | | | | | B5 P2 | 268.7 | | |
| 30 | - | 34.* | | | | | | | B5 P3 | 10.8 | | |
| 31 | - | 34.* | | | | | | | B5 P4 | 70.0 | | |
| 32 | - | 34.* | | | | | | | B5 P5 | 116.1 | | |
| 33 | - | 34.* | | | | | | | B5 P6 | 69.4 | | |
| 34 | - | 34.* | | | | | | | B5 P7 | 18.6 | | |
| 35 | - | 34.* | | | | | | | B5 P8 | 30.0 | | |
| 36 | - | 34.* | | | | | | | B5 P9 | 105.1 | | |
| 37 | - | 34.* | | | | | | | B5 P10 | 142.0 | | |
| 38 | - | 13.* | | | | | | | UNITS 10 | 106.0 | | |
| 39 | - | 13.* | | | | | | | B6 P2 | 12.0 | | |
| 40 | - | 13.* | | | | | | | B6 P3 | 30.0 | | |
| 41 | - | 13.* | | | | | | | B6 P4 | 28.0 | | |
| 42 | - | 13.* | | | | | | | B6 P5 | 136.0 | | |
| 43 | - | 13.* | | | | | | | B6 P6 | 40.0 | | |
| 44 | - | 13.* | | | | | | | UNITS 2- | 123.0 | | |

| | | 4455-whole_foods_integrated | |
|----|--------|-----------------------------|-------|
| 45 | - 13.* | B7 P2 | 81.9 |
| 46 | - 13.* | B7 P3 | 28.0 |
| 47 | - 13.* | B7 P4 | 81.9 |
| 48 | - 13.* | B7 P5 | 123.0 |
| 49 | - 13.* | B7 P6 | 28.0 |
| | | | |
| 50 | - 13.* | UNIT 1 | 12.0 |
| 51 | - 13.* | B8 P2 | 12.0 |
| 52 | - 13.* | B8 P3 | 20.9 |
| 53 | - 13.* | B8 P4 | 6.7 |
| 54 | - 13.* | B8 P5 | 17.0 |
| | | | |
| 55 | - 17.* | CORNER B | 83.0 |
| 56 | - 17.* | B9 P2 | 26.0 |
| 57 | - 17.* | B9 P3 | 83.0 |
| 58 | - 17.* | B9 P4 | 26.0 |
| | | | |
| 59 | - 6.* | Soundwal | 7.1 |
| 60 | - 6.* | B10 P2 | 82.0 |
| 61 | - 6.* | B10 P3 | 7.0 |

0 1 2 3 4 5 6 7

1

| | | | | |
|----|----------|-----|------|------|
| 1 | M1 | 67. | 500. | 73.0 |
| 2 | M2 | 67. | 500. | 64.9 |
| 3 | UNIT 1 T | 67. | 500. | 56.5 |
| 4 | UNIT 2 T | 67. | 500. | 55.9 |
| 5 | UNIT 3 T | 67. | 500. | 55.8 |
| 6 | UNIT 4 T | 67. | 500. | 55.8 |
| 7 | UNIT 5 T | 67. | 500. | 55.8 |
| 8 | UNIT 6 T | 67. | 500. | 55.9 |
| 9 | UNIT 7 T | 67. | 500. | 56.2 |
| 10 | UNIT 8 T | 67. | 500. | 56.5 |
| 11 | UNIT 9 T | 67. | 500. | 57.0 |
| 12 | UNIT 10 | 67. | 500. | 53.6 |
| 13 | UNIT 11 | 67. | 500. | 58.1 |
| 14 | UNIT 12 | 67. | 500. | 58.7 |
| 15 | UNIT 13 | 67. | 500. | 54.1 |
| 16 | UNIT 14 | 67. | 500. | 59.4 |
| 17 | UNIT 15 | 67. | 500. | 59.5 |

[illegible]

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. |
| 19. | 19. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 34. | 13. | 13. | 13. | 13. | 13. | 13. |
| 13. | 13. | 13. | 13. | 17. | 17. | 17. | 17. | 6. | 6. | 6. | | | | | | | | | |

ATTACHMENT 3

Equipment & Commercial Operations Noise Calculations

| Noise Level from room to outside Louver | 63 Hz | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Q | English |
|---|-------|-----|-----|-----|------|------|------|------|---------------------------|----------|
| Lw | 73 | 82 | 87 | 89 | 91 | 91 | 89 | 83 | 97 | 2 |
| Lw | 99 | 98 | 96 | 92 | 91 | 90 | 88 | 84 | 104 | 10 ft |
| Lp in Room | 93 | 92 | 90 | 86 | 85 | 84 | 82 | 78 | 98 | 0.15 |
| Lw of Louver | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A | 1120 ft2 |
| Lw at Louver | 93 | 92 | 90 | 86 | 85 | 84 | 82 | 78 | 97 | 40 ft2 |
| Lp (Exterior) | 75 | 74 | 72 | 68 | 67 | 66 | 64 | 60 | 80 R _s | 10 ft |
| Q, Outside | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Q(outside) | 2 |
| Directivity | -5 | -5 | -5 | -5 | -5 | -5 | -5 | -5 | | |
| A-Weighting | -26 | -18 | -9 | -3 | 0 | 1 | 1 | -1 | | |
| LpA (Exterior) | 44 | 53 | 58 | 60 | 62 | 62 | 60 | 54 | 68 | |
| Louver Attenuation | -7 | -8 | -12 | -16 | -23 | -16 | -13 | -13 | VA Model RNM-ULV-F9 (5ft) | |
| LpA with Louver (Exterior) | 37 | 45 | 46 | 44 | 39 | 46 | 47 | 41 | 53 | |

Delivery Truck Noise

| | Heavy Trucks | Standard Trucks | |
|--------------------------------------|--------------|-----------------|------|
| SEL @ 50' | 88 | 82 | 68 |
| N | 1 | 1 | 1 |
| Leq(h)/one truck | | | |
| Trucks During Daytime | 52.4 | 46.4 | 32 |
| Trucks During Evening | 4 | 2 | 360 |
| Trucks During Nighttime | 0 | 2 | 60 |
| Trucks per hour Daytime | 2 | 2 | 30 |
| Trucks per hour Evening | 0.33 | 0.17 | 30 |
| Trucks per hour Nighttime | 0.00 | 0.67 | 20 |
| Leq(day) | 0.22 | 0.22 | 3 |
| Leq(evening) | 48 | 39 | 47 |
| Leq(night) | 0 | 45 | 45 |
| CNEL @ 50' | 46 | 40 | 38 |
| CNEL @ Multi-Family Units | 56 | 53 | 53 |
| CNEL @ Multi-Family Units (Combined) | 60 | 57 | 49.3 |
| | | | 62 |

Rooftop Parking Lot Noise

| | |
|-----------------------------|--|
| SEL @ 50' | |
| N | |
| Leq(h)/one vehicle | |
| Vehicles During Daytime | |
| Vehicles During Evening | |
| Vehicles During Nighttime | |
| Vehicles per hour Daytime | |
| Vehicles per hour Evening | |
| Vehicles per hour Nighttime | |
| Leq(day) | |
| Leq(evening) | |
| Leq(night) | |
| CNEL @ 50' | |
| CNEL @ Multi-Family Units | |

Noise Source

| | | | | | |
|-------------------------------|------|------|------|------|------|
| Rooflop Equipment (Mitigated) | 1 | 5 | 8 | 10 | 13 |
| Rooflop Parking Lot | 52.9 | 54.6 | 54.9 | 55.4 | 56.8 |
| Combined CNEL | 49.3 | 49.3 | 49.3 | 49.3 | 49.3 |
| | 54 | 56 | 58 | 56 | 58 |

Multi-Family Unit

| | | |
|--|---|--|
| | 7 | |
| | | |

Receiver:
Unit 1

| Location | Lw
(dBA) | Receiver Elevation | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|--------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|----------------|----------------------|------------------------------|----------------------------|--|
| Y | | | | | | | | | | | | | |
| Group 1 | 86 | 5 | 0 | 4 | 60 | 5 | 55 | 0 | 6.0 | 0.34 | 10 | 52.5 | 42.6 |
| Group 2 | 83 | 5 | 0 | 4 | 145 | 5 | 140 | 0 | 6.0 | 0.34 | 10 | 41.9 | 31.9 |
| Group 3 | 83 | 5 | 0 | 4 | 65 | 5 | 60 | 0 | 6.0 | 0.34 | 10 | 48.8 | 38.9 |
| Group 4 | 88 | 5 | 0 | 88 | 130 | 5 | 125 | 0 | 6.0 | 0.34 | 10 | 47.6 | 37.6 |
| Group 5 | 86 | 5 | 0 | 4 | 200 | 5 | 195 | 0 | 6.0 | 0.34 | 10 | 42.1 | 32.1 |
| CC-1 | 89 | 5 | 0 | 5 | 340 | 0 | 340 | 0 | 0.0 | Line of Sight | 0 | 37.3 | 37.3 |
| | | | | | | | | | | | | 55.5 | 46.2 |
| | | | | | | | | | | | | 62.1 | 52.9 |
| | | | | | | | | | | | | | CNIEL |
| | | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) |

Receiver:
Unit 5

| Location | Lw
(dBA) | Receiver Elevation | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|--------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|----------------|----------------------|------------------------------|----------------------------|--|
| Y | | | | | | | | | | | | | |
| Group 1 | 86 | 5 | 0 | 4 | 95 | | 5 | 0 | 6.0 | 0.34 | 10 | 48.5 | 38.6 |
| Group 2 | 83 | 5 | 0 | 4 | 170 | | 5 | 0 | 6.0 | 0.34 | 10 | 40.5 | 30.5 |
| Group 3 | 83 | 5 | 0 | 4 | 30 | | 5 | 0 | 6.0 | 0.35 | 10 | 55.5 | 45.6 |
| Group 4 | 88 | 5 | 0 | 4 | 85 | | 5 | 0 | 6.0 | 0.34 | 10 | 51.3 | 41.3 |
| Group 5 | 86 | 5 | 0 | 4 | 170 | | 5 | 0 | 6.0 | 0.34 | 10 | 43.5 | 33.5 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | 57.8 | 47.9 |
| | | | | | | | | | | | | 64.4 | 54.6 |
| | | | | | | | | | | | | | CNEL |
| | | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) |

Rooftop Noise

Receiver:
Unit 7

| Location | Lw
(dBA) | Receiver Elevation
(feet amsl) | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|-----------------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|----------------|----------------------|------------------------------|----------------------------|--|
| Y | | | | | | | | | | | | | |
| Group 1 | 86 | 5 | 0 | 4 | 130 | | 5 | 0 | 6.0 | 0.34 | 10 | 45.8 | 35.9 |
| Group 2 | 83 | 5 | 0 | 4 | 190 | | 5 | | 6.0 | 0.34 | 10 | 29.6 | 29.6 |
| Group 3 | 83 | 5 | 0 | 4 | 65 | | 5 | 0 | 6.0 | 0.34 | 10 | 48.8 | 38.9 |
| Group 4 | 88 | 5 | 0 | 4 | 45 | | 5 | 0 | 6.0 | 0.35 | 10 | 56.8 | 46.8 |
| Group 5 | 86 | 5 | 0 | 4 | 130 | | 5 | 0 | 6.0 | 0.34 | 10 | 45.8 | 35.9 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | 58.1 | 48.2 |
| | | | | | | | | | | | | 64.7 | 54.9 |
| | | | | | | | | | | | | | CNEL |
| | | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) |

Rooftop Noise

Receiver:
Unit 8

| Location | Lw
(dBA) | Receiver Elevation | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|--------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|----------------|----------------------|------------------------------|----------------------------|--|
| Y | | | | | | | | | | | | | |
| Group 1 | 86 | 5 | 0 | 4 | 150 | 5 | 145 | 0 | 6.0 | 0.34 | 10 | 44.6 | 34.6 |
| Group 2 | 83 | 5 | 0 | 4 | 190 | 5 | 185 | 0 | 6.0 | 0.34 | 10 | 39.5 | 29.6 |
| Group 3 | 83 | 5 | 0 | 4 | 90 | 5 | 85 | 0 | 6.0 | 0.34 | 10 | 46.0 | 36.1 |
| Group 4 | 88 | 5 | 0 | 4 | 30 | 5 | 25 | 0 | 6.0 | 0.35 | 10 | 60.3 | 50.3 |
| Group 5 | 86 | 5 | 0 | 4 | 100 | 5 | 95 | 0 | 6.0 | 0.34 | 10 | 48.1 | 38.2 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | 60.9 | 50.9 |
| | | | | | | | | | | | | 67.5 | 57.6 |
| | | | | | | | | | | | | | CNEL |
| | | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) |

Rooftop Noise

Receiver:
Unit 10

| Location | Lw
(dBA) | Receiver Elevation
(feet amsl) | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height
(feet) | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|-----------------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|--------------------------|----------------------|------------------------------|--|--------------------------|
| Y | | | | | | | | | | | | | |
| Group 1 | 86 | 5 | 0 | 4 | 190 | 5 | 185 | 0 | 6.0 | 0.34 | 10 | 42.5 | 32.6 |
| Group 2 | 83 | 5 | 0 | 4 | 195 | 5 | 190 | 0 | 6.0 | 0.34 | 10 | 39.3 | 29.3 |
| Group 5 | 86 | 5 | 0 | 4 | 50 | 5 | 45 | 0 | 6.0 | 0.34 | 10 | 54.1 | 44.2 |
| CC-1 | 89 | 5 | 0 | 5 | 120 | 0 | 120 | 0 | 0.0 | Line of Sight | 0 | 46.4 | 46.4 |
| | | | | | | | | | | | | 55.2 | 48.7 |
| | | | | | | | | | | | | 61.9 | 55.4 |
| | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) | |
| | | | | | | | | | | | | dB Leq | |
| | | | | | | | | | | | | CNEL | |

Rooftop Noise

Receiver:
Unit 13

| Location | Lw
(dBA) | Receiver Elevation
(feet amsl) | Source Elevation
(feet amsl) | Source Height
(feet amsl) | Source to Receiver
(feet) | Source to Barrier
(feet) | Receiver to Barrier
(feet) | Barrier (base)
(feet amsl) | Barrier Height | Fresnel No. @ 500 Hz | Barrier Attenuation
(dBA) | Lp(A) w/o Barrier
(dBA) | Lp(A) w/Barrier
(dBA) |
|----------|-------------|-----------------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|----------------|----------------------|------------------------------|--|--------------------------|
| Y | | | | | | | | | | | | | |
| Group 2 | 83 | 5 | 0 | 4 | 295 | 5 | 290 | 0 | 6.0 | 0.34 | 10 | 35.7 | 25.7 |
| Group 5 | 86 | 5 | 0 | 4 | 145 | 5 | 140 | 0 | 6.0 | 0.34 | 10 | 44.9 | 34.9 |
| CC-1 | 89 | 5 | 0 | 5 | 80 | 0 | 80 | 0 | 0.0 | Line of Sight | 0 | 49.9 | 49.9 |
| | | | | | | | | | | | | 51.3 | 50.1 |
| | | | | | | | | | | | | 57.9 | 56.8 |
| | | | | | | | | | | | | (Maximum attenuation limited to 20 dB) | |
| | | | | | | | | | | | | dB Leq
CNEL | |